



**2018 Annual Report
For the Cooperative Environmental Agreement
Between 3M -Menomonie
And the Department of Natural Resources**

May 3, 2019

Prepared For:

Wisconsin DNR

Prepared By:

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Introduction

This annual performance report is submitted in part to meet the requirements of Section XIII, Baseline and Periodic Performance Evaluations, of the October 2007 Extended Agreement. Included in the report is the following information concerning the environmental performance and commitment to superior environmental performance of 3M Company – Menomonie during 2018:

- Involvement and input from the Interested Person's Group to the Agreement
- Evaluation of the EMS (Environmental Management System), areas of success and areas for improvements beyond those specified, in addition to other objectives and targets set in the previous year's report
- 2018 3P (Pollution Prevention Pays) project summaries (goal of at ten approved projects during 2018)
- Status of reductions of hazardous waste levels
- Status of progress toward the goal of a 10% reduction in manufacturing waste (chemical, landfill, waste-to-energy) per pound of good output by the end of 2020 (2015 baseline)
- Status of progress toward the goal of a 10% reduction in water use by the end of 2020 (2015 baseline)
- Status of progress toward the goal of reducing energy usage per pound of good output by 30% by the end of 2025 (2015 baseline)
- Status of progress made by the Wildlife Team to meet annual goals established by the team to maintain the Wildlife Habitat Council (WHC) site certification
- General assessment of the success of the Agreement in reducing time and money spent by 3M and the DNR on paperwork and other activities that may not directly benefit the environment

The 2025 Sustainability Goals program, established in 2015, does not include a corporate tracked VOC-specific goal. Therefore, 3M Menomonie removed mention of the progress toward the VOC-related goal that had previously been included in this section from 2005-2015. Although there is not 2025 Sustainability Goal related to VOC emissions reduction, VOC's remain an important part of 3M's footprint. It will continue to be tracked and reported both internally and externally.

Extension of the Cooperative Environmental Agreement (CEA) beyond October 1, 2012

In September 2012 3M asked for an extension of the CEA which was set to expire on October 1, 2012. Knowing that the Agreement expired on this date, 3M Menomonie had previously submitted a Green Tier application as a Level 2 participant in 2009. On September 26, 2012 Secretary Stepp granted an extension of the Agreement while 3M and the DNR worked on the Green Tier Participation contract and a re-issuance of the current Title V Air Operating Permit (see Appendix A). All terms and conditions of the Agreement and the air permit, including its flexibility provisions, would remain in effect during this time.

Regarding Commitment to Superior Environmental Performance

As stated in Section IX of the Extended Agreement, 3M Menomonie commits to pursue superior environmental performance while achieving a balance between economic, social, and environmental impacts for its efforts. The plant's commitment to reducing its environmental footprint continues to contribute to 3M's reputation in the community, the country, and the world and demonstrates that economic progress and environmental improvement can go hand-in-hand. The 2025 Sustainability Goals program is the corporate initiative that will serve as the basis for our commitment to superior environmental performance for the next ten-year period beginning in 2016 and ending in 2025. These goals were designed to drive continued reductions in waste, water and energy efficiency, and continue the emphasis on the Pollution Prevention Pays (3P) program. Specific Menomonie goals for this program are:

- **Reduce waste (chemical, landfill, waste-to-energy) per pound of good output (semi-finished and finished goods only) by 10% by the end of 2020 (2015 baseline)**

Waste, as defined in the 2025 Sustainability Goals program, includes chemical waste sent for treatment, waste sent to waste to energy (W/E) facilities for disposal, and landfill. Plant recycle and reuse of raw materials, and the offsite recycle and reuse of materials sent to waste vendors are considered “neutral” in this program and serve as an incentive for 3P projects for cost reduction and pollution prevention.

- **Reduce water use per pound of good output by 10% by the end of 2020 (2015 baseline)**
- **Improve Energy Efficiency per pound of good output by 30% by the end of 2025 (2015 baseline)**
- **Sustain wildlife management plan and certification to Wildlife Habitat Council (WHC) standards**
- **Submit 10 accepted 3P (Pollution Prevention Pays) projects each year**

These goals set the basis for superior environmental performance under the Extended Agreement.

Regarding the Interested Persons Group

The 3M Company–Menomonie Interested Persons Group (IPG) is composed of representatives from business, government and citizen groups in the Menomonie area who are interested in environmental stewardship and the impact of manufacturing on local communities. Group members include the following individuals:

- Barbara Thomas, Chippewa Valley (WI) Chapter of the Sierra Club
- Mike Beaupre, Director, Indianhead Enterprises
- Sonny Zentner, Wisconsin Department of Natural Resources
- Paul Sterk, Superintendent, Menomonie Wastewater Utility

This group met on June 14th, 2018 as everyone on the mentioned list is willing to continue as a member of the stakeholders group.

Regarding an Evaluation of the EMS

A third-party auditor, BSI (British Standards Institute), conducted a certification audit of our EMS to the ISO 14001:2015 standard in May 2018. One new nonconformity was identified during the assessment. Corrective actions with respect to nonconformities raised at the last assessment were reviewed and found to be effectively implemented.

Internal assessments of the EMS were conducted in ten operational and service areas of the facility during the year. These audits resulted in eight corrective actions being issued from the ten audits conducted. All corrective actions have been addressed. Regular management review is held at least quarterly with the EMS Core team and members of the plant management team to review progress towards the plant environmental goals and targets. Quarterly updates are communicated to all plant management to share with their departments at department team meetings. Semi-annual reviews of all EMS elements were held with upper management in March and November 2018.

A self-assessment audit called GEMSA (Global Environmental Management Self-Assessment) that reviews environmental regulatory and other requirements to which 3M subscribes was reviewed and approved by plant management in May 2018. The 2018 Environmental Targets and Objectives and the EMP (Environmental Management Program) to achieve these objectives are attached in Appendix B.

Regarding a Summary of 2018 Approved 3P (Pollution Prevention Pays) Projects

A standing EMS goal for the facility is to generate at least 10 approved 3P projects each year. In 2018 there were seven approved projects submitted that:

- Prevented the potential of 146 tons of pollution
- Saved 863,680 KWH of energy
- Reduced GHG Emissions by 592 metric tons of CO2 equivalent
- Saved \$5,700,000 in first year savings

A summary of these projects is shown in Table 1:

Table 1: 3P (Pollution Prevention Pays) Project Summary

Project Title	Project Description	Pollution Prevented/Energy Saved	\$ Saved (first year)
MRC6-9 Heated Idler Elimination and Removal	Removed unneeded process heaters from production lines	Avoided using 863,680-kilowatt hours of electricity	\$ 42,430
LAMI-Converting Fiberglass Core Reuse	Transitioned from landfilling cores to having them used at another 3M facility	Avoided sending 20 tons of fiberglass cores to landfill	\$ 501,600
Longer ALCF Automotive Tool Life Improvement Project	Extending life of process tools.	Avoided consuming 15,000 gallons of water	\$ 4,550
MRC Trench Particle Contamination Reduction	Coating line yield improvement.	Avoided generating 107 tons of waste, avoided consuming 55,000 gallons of water	\$5,040,000
Zephyr Changeover Kaizen - Resin Wand Pull Timing	Reduce waste resin by minimizing changeover time.	Avoided generating 7 tons waste	\$ 50,000
FA Tooling Yield Improvement Project	Streamlining startup and shutdown of production line.	Avoided generating 12 tons of waste	\$ 13,180
Ceramic Fiber Kiln Scrap Reduction	Administrative error proofing to minimize incorrect process settings.	Avoided generating 0.6 tons of waste	\$ 40,200

Status of Progress toward Reduction in Waste per Pound of Good Output

Results:

The actual ratio for 2018 was 28 pounds waste/ 1000 pounds good output. There is an on-going effort to identify waste streams that were being sent for W/E (waste to energy) treatment to recycle, thus reducing our waste ratio. Results of this goal are shown in Table 2.

Figure 1: Waste lbs. / 1000 lb. Good Output

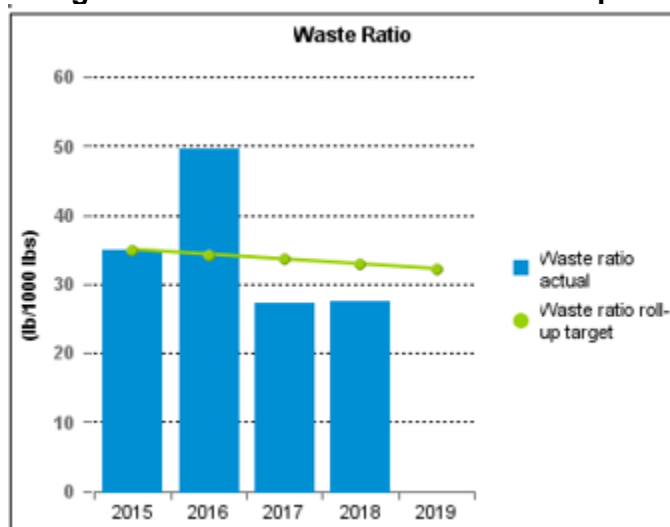


Table 2: Waste lbs. / 1000 lb. Good Output

Metric	2017	2018
Total good output (1000 lbs)	53,299	46,157
Waste (1000 lbs)	1,450	1,274
Waste ratio, actual (lbs/1000 lbs)	27	28

Table 3: Percent Recycle & Reuse

Metric	2017	2018
% Reuse and Recycle	66%	60%

Status of Progress toward the Goal of Reducing Energy Usage per Pound of Good Output

Results:

The energy usage ratio increased over the previous year to 20,131 Btus/ pound good output vs. the 2017 figure of 18,042, an 11.6% increase.

Figure 2: Energy Use/ Lb. Good Output

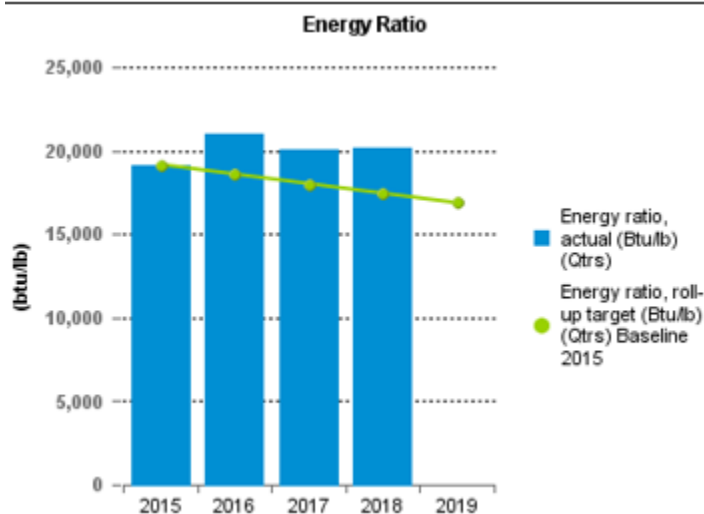


Table 4: Energy Use/Lb. Good Output

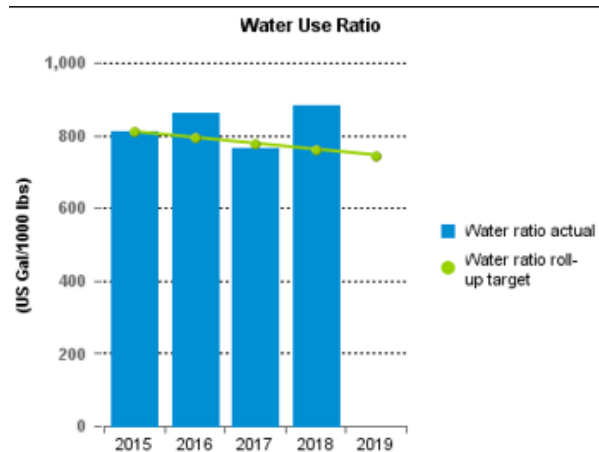
Metric	Baseline Year	Goal (%)	Baseline	2015	2016	2017	2018
Total good output (1000 lbs.)				49,869	47,962	53,299	46,157
Energy Usage (mmbtu)	2015	15	971,461	971,461	950,606	961,603	982,088
Energy ratio, actual (btu/lb.)			19,480	19,480	19,820	18,042	20,131
Energy ratio, target (btu/lb.)				19,480	18,896	18,311	17,429

Status of Progress toward the Goal of Reducing Water Usage Per Pound of Good Output

Results:

Water usage is a new addition to the 2025 Sustainability Goals, with a target to reduce water usage per pound of good output by 10% by 2020. Most of the water used by the plant is for makeup water evaporated by the plant chilled water cooling towers. There was a 9.1% increase in the water use ratio from the 2015 baseline in 2018 largely due to a decrease in lawn irrigation use.

Figure 3: Plant Water Use Ratio



Status of Progress Made by the Wildlife Team

Results:

For the twelfth straight year, the team conducted nest box monitoring for bluebirds and wood ducks. The blue bird project was again quite successful with many confirmed bluebirds and tree swallows raised from the 19 nest boxes. For the tenth straight year, the plant provided funding for the Menomonie Public Schools for their annual Earth day activities and provided volunteers for the event. The wildlife team undertook various other projects during the year including a birdwatch activity, planning and monitoring two bat houses, continued study and maintenance of the prairie restoration areas. We are now in the third year of alfalfa for the farm land lease. This change has decreased water and wind erosion.

Regarding Actual Waste Reductions

A summary of 2017/2018 3M-Menomonie actual wastes and air emissions are shown in Table 6:

Table 5: 2017/2018 Waste & Air Emissions (lb)

Type of Waste	2017	2018	% Change	Comment
Regulated Hazardous Waste	479,198	653,666	+36.4%	
Non-regulated chemical waste	338,357	303,502	-10.3%	
Landfill waste	781,600	578,600	-26%	
Waste to energy	2,802,400	2,481,500	-12.5%	
VOC emissions	211,213	304,605	+ 44.2 %	Increase in C5 emissions, insignificant activities added to P20 permit added over 60,000lbs in emissions in 2018
Reportable TRI (toxic release inventory) chemicals releases	440,226 (RY2016)	418,900 (RY2017)	- 5.1 %	

Regarding Status of VOC Emissions

Results:

3M did not include VOC-specific goals in the 2025 Sustainability Goals program. Although there is no 2025 Sustainability Goal related to VOC emission reductions, VOCs remain an important part of 3M's footprint. 3M Menomonie will continue to track and report these emissions both internally and externally. Actual VOC emissions increased 93,392 lbs. or 44% in 2018 compared to 2017. A VOC reduction project to convert to solvent-less tape coatings began in 2015. The ultimate goal is to reformulate solvent based formulations to water based formulations. This is in alignment with the corporate policy to reduce VOC emissions from a single uncontrolled source that emits over 100 tons of VOC emissions. In 2018 the C5 Tape line released 99 tons of emissions.

Regarding Operational Flexibility:

There were no exempt projects that were completed during 2018.

Regarding Additional Time Requirements for Fulfilling this Agreement include:

Requirements Added:

Additional Time

Compiling this Performance Report

30 hours/year

Regarding Overall Assessment of the Success of the Agreement:

3M Menomonie regards the operational flexibility provided in this Agreement to be a business advantage. The Agreement showcases the business advantage with the ability to proceed with pre-approved projects such as the project on one of the optical film coaters mentioned above and the flexibility to expand product manufacturing capability in such a short time frame.

Questions and requests for additional information should be directed to Brad Luedtke, Environmental Engineer, at the address below:

3M Company – Menomonie Plant
1425 Stokke Parkway
Menomonie, WI 54751
Phone: 715-578-2318
E-mail: bdluedtke@mmm.com

Appendix A: Extension of CEA

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
101 S. Webster Street
Box 7921
Madison WI 53707-7921

Scott Walker, Governor
Cathy Stepp, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711



September 26, 2012

Mr. Mark Manninen
3M Environmental, Health and Safety Operations
P.O. Box 33331
St. Paul MN 55133-3331

Subject: Environmental Cooperative Agreement

Dear Mr. Manninen:

Thank you for your letter requesting our continued operation under the terms of the flexible permit created for the Environmental Cooperative Agreement. We are mutually agreed that we will continue with the terms of that permit and we will continue to use the flexibility afforded in the Cooperative Agreement to continue our existing working relationship until such time as the Tier 2 contract and accompanying permit between 3M and the Wisconsin Department of Natural Resources is signed.

The Department places high value on our working relationship that has developed over the last 10 years. We are eager to get the Tier 2 contract in place and we will be working with you and with other 3M staff to complete that work once we have figured out the best approach based on the work that we are doing with the 3M Prairie du Chien permit and contract. Once we have worked through the USEPA issues, I would expect that we would proceed quickly with the permit drafting, contract development, public notice and ultimately to the signing of the participation contract.

Please do not hesitate to contact me if there is more that we can do, not only with Green Tier but also with needs to grow your business units here in Wisconsin. Please feel free to also contact Mark McDermid (608.267.3125 or mark.mcdermid@wisconsin.gov) if there is anything that we can do. I very much look forward to seeing you again when we celebrate 3M's new participation contract.

Sincerely,

Cathy Stepp
Secretary

**Appendix B: 2020 Target & Objectives
2018 EMP**

Aspect	Objective(s)	Target(s)	Results
Waste from raw materials and processes	Reduce waste ratio by 10% from 2015 baseline indexed to product output by the end of 2020	Reduce waste (chemical, landfill, waste to energy) per pound of good output (finished & semi-finished goods)	2018 Final: 28 #/ 1000 # good output
Energy usage	Reduce energy usage per pound of good output by 30% by the end of 2025 (2015 baseline)	Reduce energy use per pound of good output to 18311 BTU/ # output by end of 2018	2018 Final: 25,054 BTU/# good output
Waste and energy reduction	3P (Pollution Prevention Pays) Projects	Submit at least 10 3P (Pollution Prevention Pays) projects in 2018	2018 Final: 7 released
Legal Requirements Operational flexibility Sustainability	Renew T5 flexible Air Permit	New construction permit by the end of 2018	See EMP (environmental management program) <ul style="list-style-type: none"> Permit 17-MEO-202 issued on September 4th, 2018
Land conservation, habitat development, wildlife management, community involvement	Sustain WHC (Wildlife Habitat Council Certification) programs through 2016 (recertification in 2018)	Wildlife projects scheduled in 2018: <ul style="list-style-type: none"> Nest box monitoring Earth Day with public schools/Earth Day Fair Bat houses Land use (lease) Prairie restoration 	See EMP: <ul style="list-style-type: none"> Nest box monitoring on going for BB and wood ducks Successful alfalfa season according to Lee Jensen at 5 Star Dairy Earth Day Fair for employees held on May 1st, 2018 Harvested several black locust trees – July

2018 EMP

Facility: 3M Menomonie	Responsible Person(s): Brad Luedtke; EMS Core Team	Start Date: 1/1/2018
Goal Statement: Reduce waste ratio by 2% from 2015 baseline by the end of 2018		
Objective(s): Reduce waste by 2% each year indexed to good output for the year 2015 – 2020 for an overall reduction of 10% by the end of 2020		Target: Reduce waste (chemical, landfill) per pound of good output (finished & semi-finished goods) to 28 pounds/ 1000 pounds good output by the end of 2018
Strategy: Reduce waste by applying source reduction, recycling, and administrative techniques		
Actions to Achieve Objectives and Target: <ul style="list-style-type: none"> Partner with Lean Six Sigma and COPQ efforts to address intrinsic waste due to the product and process design and manufacturing Partner with Resource Recovery to implement/improve waste reduction programs (recycling, reuse and disposal costs) 3P (Pollution Prevention Pays) waste reduction or yield improvement projects Zero Landfill efforts – investigate cafeteria/compostable waste with Waste Management other recycling projects 		
Metrics: <div style="border: 2px solid blue; padding: 10px; margin-top: 10px; width: fit-content;"> $\begin{array}{lcl} \text{Waste} & & \text{Treatment/Incineration + Landfill +} \\ \text{Target} & & \text{Waste-to-Energy (not include off-site recycle)} \\ \text{Ratio} & = & \frac{\quad}{\quad} \\ \text{(Facility)} & & \text{Good Output} \end{array}$ </div>		

Facility: 3M Menomonie	Responsible Person(s): Jay Imsande; Chris Smith	Start Date: 1/1/2018
Goal Statement: VOC emissions from C5 Tape <100 TPY		
Objective(s): Eliminate solvent-based coatings in 27, 44 and 79 tapes. Track monthly for C5 Tape		Target: Target emissions below 100 tons solvent-based coating applied by end of 2018
Strategy: Reduce VOC emissions by product reformulation of high solvent tapes to water based coatings		
Actions to Achieve Objectives and Target: <ul style="list-style-type: none"> • Partner with division laboratories via CTOC "PSA solvent reduction" project and "green chemistry" programs to understand internal targets for divisions • Monitor AERP status in C5 Tape (< 100 tons VOC emissions/year) • Convert 27, 44, 79 tapes to water based LAB (project 50% reduction in VOC emissions) • 3P Emission reduction projects 		

Metrics:

<100 tons VOC emissions from C5 coater

Facility:

3M Menomoneie

Responsible Person(s):

Brad Luedtke; EMS Core Team

Start Date:

1/1/2018

Goal Statement: Submit 3P (Pollution Prevention Pays) Projects

Objective(s): Submit at least 5 3P (Pollution Prevention Pays) Projects each year through the end of 2018

Target: Submit at least **10** 3P (Pollution Prevention Pays) projects in 2018

Strategy: Submit 3P projects that will reduce waste, energy, GHG, or emissions

Actions to Achieve Objectives and Target:

Pollution Prevention Methods

Method	Description
Product Reformulation	• Replace a part of entire product with less or no toxic chemical(s)
Process Modification	• Alter a manufacturing process to reduce pollution (air, water, waste)
Equipment Redesign	• Redesign of equipment with new concept to reduce pollution
Quality/Yield Improvement	• Improve efficiency with reduced defects or use fewer raw materials to reduce waste
Recovery and/or Reuse	• Develop/Improve system to recover or re-use waste stream
New Product	• Develop product with environmental attribute/benefit to assist customer with reducing pollution

Metrics:

Number of approved projects submitted in the current year; 1st year savings (\$), pollution prevented (tons), energy saved (MMBTU)

Facility: 3M Menomonie	Responsible Person(s): Joe Kulzer; Energy Team	Start Date: 1/1/2018
Goal Statement: Improve energy efficiency 30% by 2025 from 2015 Base Year, indexed to output (BTUs/Output)		
Objective(s): Reduce energy use per pound of good output by 3% by end of 2018 (base year 2015)		Target: Reduce energy use per pound of good output to 18872 BTU/ lb. good output by the end of 2018 (base year 2015)
Strategy: Reduce energy usage or increase energy efficiency of processes and equipment through conservation or improved technologies		

Actions to Achieve Objectives and Target:

- Develop prioritized plans for projects and spend.
- Continue internal commitment to energy management excellence.
- Promote energy team to identify opportunities for conservation and optimizing processes and equipment
- 3P Energy projects

Metrics:

BTUs

Finished and Semi-Finished Goods

Facility:

3M Menomonie

Responsible Person(s):

Brad Luedtke, Matt Kilpo

Start Date:

1/1/2018

Goal Statement: Issue Title V construction permit with preapproved changes

Objective(s): Issue Title V construction permit by end of 2018

Target: Issue Title 5 construction permit by end of 2018

Strategy: Issue Title V construction air permit

Actions to Achieve Objectives and Target:

- Cooperative action between 3M and DNR to agree on permit language
- Continue to work with EO and WDNR to expedite permitting approvals

Metrics: Issued Title V construction permit by end of 2018

Facility: 3M Menomonie	Responsible Person(s): Brad Luedtke, Wild at Work wildlife team	Start Date: 1/1/2018
Goal Statement: Maintain status as a Wildlife Habitat Council (WHC) certified site		
Objective(s): Sustain WHC programs through 2018. Renew WHC (Wildlife Habitat Council) certification in 2018		Target: Wild life projects scheduled in 2018: <ul style="list-style-type: none"> • Nest box monitoring • Earth Day with public schools • Prairie restoration
Strategy: Use Wild at Work wildlife team to plan and implement projects in 2018		
Actions to Achieve Objectives and Target: <ul style="list-style-type: none"> • Nest box monitoring of bluebirds/ replace blue bird houses as needed – weekly in summer nesting season • Fund and provide volunteers with Earth Day – Menomonie Middle School – April 2018 • Earth Day fair for 3M employees – April 2018 • Monitor/maintain prairie plantings – summer, fall 2015- invasive species control • Nest box monitoring of wood ducks – spring box check 		
Metrics: Monitor activities of Wild at Work team – see team room on Sharepoint		

Facility: 3M Menomonie	Responsible Person(s): Joe Kulzer; Energy Team	Start Date: 1/1/2018
Goal Statement: Reduce water use indexed to good output 10% by 2020, compared to 2015 baseline year.		
Objective(s): Reduce water use indexed to good output by 2% in 2018 (base year 2015)		Target: Reduce water use indexed to good output to 761 gallons/ 1000 lb. good output by the end of 2018 (base year 2015)
Strategy: Reduce water usage or increase efficiency of processes and equipment through conservation or improved technologies that use water		
Actions to Achieve Objectives and Target: <ul style="list-style-type: none"> • Develop prioritized plans for projects and spend to reduce water usage. • Review lawn watering practices to conserve use. • Promote energy team to identify opportunities for conservation and optimizing processes and equipment that use water • 3P water reduction projects 		
Metrics: <div style="text-align: center;"> <p>Water used</p> <p>-----</p> <p>Finished and Semi-Finished Goods</p> </div>		